

DOCKET NO. D-1987-008 CP-3

DELAWARE RIVER BASIN COMMISSION

**Municipal Authority of the Borough of Morrisville
Wastewater Treatment Plant
Morrisville Borough, Bucks County, Pennsylvania**

PROCEEDINGS

This docket is issued in response to an application submitted to the Delaware River Basin Commission (DRBC or Commission) by Pennoni Associates, Inc. (Pennoni) on behalf of the Municipal Authority of the Borough of Morrisville (MBMA) on March 22, 2012 (Application), for renewal of an existing discharge from the MBMA wastewater treatment plant (WWTP) and approval of an outfall extension. National Pollutant Discharge Elimination System (NPDES) Permit No. PA0026701 for this project was approved by the Pennsylvania Department of Environmental Protection (PADEP) on February 1, 2011. PADEP's renewal of the NPDES Permit is expected shortly.

The Application was reviewed for continuation of the project in the Comprehensive Plan and approval under Section 3.8 of the *Delaware River Basin Compact*. The Bucks County Planning Commission has been notified of pending action. A public hearing on this project was held by the DRBC on December 5, 2012.

A. DESCRIPTION

1. Purpose. The purpose of this docket is to renew the approval of the existing 8.7 million gallons per day (mgd) MBMA WWTP. The docket also approves the construction related to the extension of Outfall No. 001 to bring the docket holder's discharge into compliance with the Commission's in-stream water quality requirements. Effluent limits for the MBMA WWTP are based upon the average annual discharge of 7.1 mgd.

2. Location. The MBMA WWTP discharges to the tidal Delaware River in Water Quality Zone 2 at River Mile 133.0. The WWTP is located in Morrisville Borough, Bucks County, Pennsylvania as follows:

OUTFALL NO.	LATITUDE (N)	LONGITUDE (W)
001	40° 12' 13"	74° 45' 58"

3. Area Served. The MBMA WWTP will continue to serve Yardley and Morrisville Boroughs, as well as portions of Falls and Lower Makefield Townships, all in Bucks County,

Pennsylvania. Additionally, up to 0.06 mgd of leachate from the GROWS, GROWS North, and Tullytown landfills will be conveyed to the MBMA WWTP via a pump station located on the site of the GROWS Landfill leachate treatment plant (LTP) in Falls Township, Bucks County, Pennsylvania. For the purpose of defining the Area Served, Section B (Type of Discharge) and D (Service Area) of the docket holder's Application are incorporated herein by reference, to the extent consistent with all other conditions contained in the DECISION Section of this docket.

4. Physical Features.

a. Design Criteria. The existing MBMA WWTP has effluent limitations based on an annual average flow of 7.1 mgd. The PADEP has established a hydraulic capacity of 8.7 mgd for this facility. The docket holder proposes to extend Outfall No. 001 into deeper water within the Delaware River to gain better dilution of its effluent in order to meet the Commission's in-stream water quality requirements.

b. Facilities. The existing 8.7 mgd MBMA WWTP consists of an aerated grit chamber with a screening device, an influent pumping station, a splitter box, four primary settling tanks, four aeration tanks, ten final settling tanks, three rapid sand filters, six chlorine contact tanks, two sludge thickening tanks, and a mechanical sludge dewatering facility. Additionally, the docket holder utilizes a Unox system that will continue to provide pure oxygen to the treatment process for the purpose of enhancing the biological removal of organics.

The project facilities are located in the flood fringe and are flood-proofed at least one foot above the 100-year flood elevation.

Wasted sludge will continue to be hauled off-site by a licensed hauler for disposal at a (State-approved) facility.

c. Water withdrawals. The potable water supply in the project service area is supplied by the MBMA. The water withdrawal from the Delaware River is described in detail in DRBC Docket No. D-74-72 CP, which was approved on April 23, 1975.

d. NPDES Permit / DRBC Docket. NPDES Permit No. PA0026701 was approved by the PADEP on February 1, 2011 and includes final effluent limitations for the project discharge of 7.1 mgd to surface waters classified by the PADEP as Warm Water/Migratory Fishery (WWF/MF). Renewal of the NPDES Permit is expected shortly. The following average monthly effluent limits are among those listed in the NPDES permit and meet or are more stringent than the effluent requirements of the DRBC.

EFFLUENT TABLE A-1: DRBC Parameters Included in NPDES Permit

OUTFALL 001 (WWTP)		
PARAMETER	LIMIT	MONITORING
pH (Standard Units)	6 to 9 at all times	As required by NPDES Permit
Total Suspended Solids	30 mg/l	As required by NPDES Permit
CBOD (5-Day at 20° C)	22 mg/l (88.5% minimum removal*)	As required by NPDES Permit
CBOD20	1,916 lbs/day*	As required by NPDES Permit

OUTFALL 001 (WWTP)		
PARAMETER	LIMIT	MONITORING
Ammonia Nitrogen	35 mg/l	As required by NPDES Permit
Fecal Coliform	200 colonies per 100 ml as a geo. avg.	As required by NPDES Permit
Total Copper	Monitor & Report	As required by NPDES Permit
PCBs	Monitor & Report **	As required by NPDES Permit
Toxicity (Acute & Chronic)	Monitor & Report ***	As required by NPDES Permit

* DRBC Requirement

** See DECISION Condition II.w.

*** See DECISION Conditions II.l., II.u., & II.z.

EFFLUENT TABLE A-2: DRBC Parameters Not Included in NPDES Permit

OUTFALL 001 (WWTP)		
PARAMETER	LIMIT	MONITORING
True Color*	100 units on the platinum cobalt scale * (Instantaneous Maximum)	Weekly *
Total Dissolved Solids*	1,000 mg/l * (Daily Maximum)	Monthly **
Zinc*	Monitor & Report *	Quarterly *

* DRBC Requirement

** See DECISION Condition II.u.

The PADEP has required monitoring for Phosphorous. The DRBC does not require Phosphorous effluent limits or monitoring outside of Special Protection Waters.

e. Cost. The overall cost of the outfall extension is estimated to be \$1,750,000 (See DECISION Condition II.k.).

f. Relationship to the Comprehensive Plan. The MBMA WWTP was originally included in the Comprehensive Plan as part of Addendum No. 1. Expansions to the WWTP were approved by the Commission in Dockets No. D-65-64 CP, D-69-65 CP, and D-87-8 CP. Docket No. D-1987-008 CP-2 continued approval of the WWTP in the Comprehensive Plan. The table below reflects the approval date for each addendum/docket. Issuance of this docket will continue approval of the WWTP in the Comprehensive Plan (See DECISION Condition I.c.).

DOCKET NO.	APPROVAL DATE
Addendum No. 1	July 25, 1962
D-65-64 CP	June 23, 1965
D-69-65 CP	August 23, 1972
D-87-8 CP	September 22, 1987
D-1987-008 CP-2	July 13, 2011

B. FINDINGS

The purpose of this docket is to renew the approval of the existing 8.7 mgd MBMA WWTP. The docket also approves the construction related to the extension of Outfall No. 001 to bring the docket holder's discharge into compliance with the Commission's in-stream water quality requirements. Effluent limits for the MBMA WWTP are based upon the average annual discharge of 7.1 mgd.

CBOD₂₀ Wasteload Allocation

The Commission's *Water Quality Regulations (WQR)* provide for the allocation of the stream assimilative capacity where waste discharges would otherwise result in exceeding such capacity. It was determined in the late 1960's that discharges to the Delaware Estuary be limited to a total of 322,000 lbs/day of carbonaceous biochemical (first stage) oxygen demand (CBOD₂₀). In accordance with the Regulations, the assimilative capacity of each Delaware Estuary zone minus a reserve was originally allocated in 1968 among the individual dischargers based upon the concept of uniform reduction of raw waste in a zone (Zones 2, 3, 4 and 5). The totals and percent reduction for each zone are given in Table 1 of the Commission's *Status of CBOD₂₀ Wasteload Allocations* (Revised October 1, 2000). The MBMA WWTP is located in Zone 2 at river mile 133.0. Zone 2 is currently over-allocated. However, since the year 2000 the Commission has reduced the load in Zone 2 by more than 1,500 lbs/day and continues reducing the CBOD₂₀ allocations as the opportunities present themselves.

CBOD₂₀ Allocation History

The Commission approved Docket No. D-87-8 CP on September 22, 1987. Docket No. D-87-8 CP approved a CBOD₂₀ allocation of 989 lbs/day.

By letter dated August 14, 1998 the Executive Director increased the CBOD₂₀ allocation to 2,418 lbs/day.

The Commission approved Docket No. D-1987-008 CP-2 on July 13, 2011. Docket No. D-1987-008 CP-2 continued approved for a CBOD₂₀ allocation of 2,418 lbs/day.

CBOD₂₀ Allocation Determination

The docket holder was required to monitor for CBOD₅ and CBOD₂₀ concurrently on a monthly basis since the issuance of Docket No. D-1987-008 CP-2 in order to confirm the ratio between the two of 1.47. Data confirms that the ratio between CBOD₂₀ and CBOD₅ is still 1.47 to 1 as established in Docket No. D-87-8 CP. With a permitted concentration of 22 mg/l of CBOD₅ and an average annual discharge no greater than 7.1 mgd, the maximum loading of CBOD₂₀ required for the WWTP is estimated to be 1,916 lbs/day. In September 2011 flows from the WWTP totaled 6.53 mgd and the associated loading of CBOD₂₀ was 1,185.2 lbs/day. Therefore, at this time the CBOD₂₀ wasteload allocation is hereby reduced to 1,916 lbs/day in order to reclaim a portion of the over-allocated Zone 2 loading without causing the potential for the docket holder to violate.

PCBs

The docket holder shall continue to monitor for poly-chlorinated biphenyls (PCBs) in accordance with the approved pollutant minimization plan (PMP) each year at Outfall No. 001 (See DECISION Condition II.w.).

Toxicity

The Commission's stream quality objectives for toxic pollutants include criteria to protect the taste and odor of ingested water and fish [Table 4 of DRBC's *WQR*], to protect aquatic life (Table 5), and to protect human health (Tables 6 & 7). The stream quality objectives include Whole Effluent Toxicity (WET) as a measure of cumulative toxicity in effluent for both acute and chronic exposures. The docket holder shall continue to perform WET testing (Chronic and Acute) at Outfall No. 001 quarterly (See DECISION Condition II.l.). The docket holder shall submit a summary of all data collected between the issuance of Docket No. D-1987-008 CP-2 and July 13, 2013 by October 31, 2013 to the Commission in accordance with DECISION Condition II.i. of that docket.

Omni Environmental (Omni) prepared an effluent dilution study (EDS) on September 19, 2012 that was submitted to the Commission as part of the Application in accordance with DECISION Condition II.u. of Docket No. D-1987-008 CP-2. The study verifies that the proposed outfall extension and diffuser construction will bring Outfall No. 001 into conformance with the Commission's *WQR* with respect to toxicity.

The proposed project involves the construction of a new 10 foot by 18 foot diversion chamber that will divert flows from the existing 54" outfall into a new parallel 30" outfall pipe under normal conditions. On days when flows meet or exceed 12 mgd effluent will overflow the weir within the diversion chamber and flow into the existing 54" outfall line. This scenario is projected to occur rarely, approximately twice a year. The new 30" pipe will be submerged and extend approximately 450 feet into the Delaware River from the high water line to a point where water is approximately 5 feet deep at low tide. There will be a manifold on the end of the outfall with three 8" duck bill diffusers to provide mixing. The diffuser is designed to meet a minimum dilution of 6.4 to 1, which would result in an effluent discharge that is in conformance with the Commission's regulatory mixing zone. Based on CORMIX simulations, plumes occupy half of the RMZ because of high exit velocity from the diffuser. This docket therefore approves a regulatory mixing zone (RMZ) of three semi-circles with a radius of 29.5 feet centered on each diffuser port for Outfall No. 001. Because of overlapping of the RMZ of each port, the total area will be less than 4,100 ft²(sum of three semi-circles) (See DECISION Condition II.z.). The diversion chamber, 30" outfall pipeline, and diffuser must be complete by September 30, 2014 (See DECISION Condition II.x.).

Other

The nearest surface water intake of record for public water supply downstream of the project discharge is operated by the Lower Bucks County Joint Municipal Authority at River Mile 122.3. This intake is approximately 10.7 river-miles downstream from existing Outfall No.

001. There are currently no operational potable water supply intakes of record that are upstream from the project discharge within the tidal area.

Near the project discharge site, the Delaware River is tidal and its flow is regulated by upstream reservoir releases. The Trenton low flow target is 2,500 cfs (1.62 billion gallons per day). The addition of the tidal tributaries upstream of the discharge location at their Q_{7-10} flow and the low flow Trenton target results in a low-flow of approximately 2,634 cfs. The ratio of this low flow to the average design wastewater discharge from Outfall No. 001 (7.1 mgd) is 240 to 1.

The project does not conflict with the Comprehensive Plan and is designed to prevent substantial adverse impact on the water resources related environment, while sustaining the current and future water uses and development of the water resources of the Basin.

The limits in the NPDES Permit are in compliance with Commission effluent quality requirements, where applicable.

The project is designed to produce a discharge meeting the effluent requirements as set forth in the Commission's *Water Quality Regulations (WQR)* for all parameters except toxicity. Upon completion of the outfall extension (by September 30, 2014) the docket holder's WWTP will discharge effluent that will be compliance with the Commission's *WQR*.

C. DECISION

I. Effective on the approval date for Docket No. D-1987-008 CP-3 below:

- a. The project described in Docket No. D-1987-008 CP-2 is removed from the Comprehensive Plan to the extent that it is not included in Docket No. D-1987-008 CP-3; and
- b. Docket No. D-1987-008 CP-2 is terminated and replaced by Docket No. D-1987-008 CP-3; and
- c. The project and the appurtenant facilities described in Section A "Physical Features" of this docket shall be added to the Comprehensive Plan.

II. The project and appurtenant facilities as described in Section A "Physical Features" of this docket are approved pursuant to Section 3.8 of the *Compact*, subject to the following conditions:

- a. Docket approval is subject to all conditions, requirements, and limitations imposed by the PADEP in its NPDES Permit, and such conditions, requirements, and limitations are incorporated herein, unless they are less stringent than the Commission's.
- b. The facility and operational records shall be available at all times for inspection by the DRBC.

c. The facility shall be operated at all times to comply with the requirements of the Commission's *WQR*.

d. The docket holder shall comply with the requirements contained in the Effluent Tables in Section A.4.d. of this docket. The docket holder shall submit the required monitoring results directly to the DRBC Project Review Section. The monitoring results shall be submitted annually, absent any observed limit violations, by January 31. If a DRBC effluent limit is violated, the docket holder shall submit the result(s) to the DRBC within 30 days of the violation(s) and provide a written explanation that states the action(s) the docket holder has taken to correct the violation(s) and protect against any future violations.

e. Except as otherwise authorized by this docket, if the docket holder seeks relief from any limitation based upon a DRBC water quality standard or minimum treatment requirement, the docket holder shall apply for approval from the Executive Director or for a docket revision in accordance with Section 3.8 of the *Compact* and the *Rules of Practice and Procedure*.

f. If at any time the receiving treatment plant proves unable to produce an effluent that is consistent with the requirements of this docket approval, no further connections shall be permitted until the deficiency is remedied.

g. Nothing herein shall be construed to exempt the docket holder from obtaining all necessary permits and/or approvals from other State, Federal or local government agencies having jurisdiction over this project.

h. The discharge of wastewater shall not increase the ambient temperatures of the receiving waters by more than 5°F above the average 24-hour temperature gradient displayed during the 1961-1966 period, nor shall such discharge result in stream temperatures exceeding 86°F.

i. Sound practices of excavation, backfill and reseeding shall be followed to minimize erosion and deposition of sediment in streams.

j. Within 10 days of the date that construction of the project has started, the docket holder shall notify the DRBC of the starting date and scheduled completion date.

k. Within 30 days of completion of construction of the approved project, the docket holder is to submit to the attention of the Project Review Section of DRBC a Construction Completion Statement ("Statement") signed by the docket holder's professional engineer for the project. The Statement must (1) either confirm that construction has been completed in a manner consistent with any and all DRBC-approved plans or explain how the as-built project deviates from such plans; (2) report the project's final construction cost as such cost is defined by the project review fee schedule in effect at the time the application was made; and (3) indicate the date on which the project was (or is to be) placed in operation. In the event that the final project cost exceeds the estimated cost used by the docket holder to calculate the DRBC project review fee, the statement must also include (4) the amount of any outstanding balance owed for DRBC review. The outstanding balance will equal the difference between the fee paid to the

Commission and the fee calculated on the basis of the project's final cost, using the formula and definition of "project cost" set forth in the DRBC's project review fee schedule in effect at the time application was made.

l. The docket holder shall continue to monitor for both Acute Toxicity and Chronic Toxicity quarterly at Outfall No. 001 in accordance with the requirements in the FINDINGS Section of Docket No. D-1987-008 CP-2 and as required by DECISION Condition II.i. of the same docket. The report of the first 24 months of data shall be submitted by October 31, 2013 as required in DECISION Condition II.i. of Docket No. D-1987-008 CP-2.

m. The docket holder is permitted to treat and discharge wastewaters as set forth in the Area Served Section of this docket, which incorporates by reference Sections B (Type of Discharge) and D (Service Area) of the docket holder's Application to the extent consistent with all other conditions of this DECISION Section.

n. The docket holder shall make wastewater discharge in such a manner as to avoid injury or damage to fish or wildlife and shall avoid any injury to public or private property.

o. No sewer service connections shall be made to newly constructed premises with plumbing fixtures and fittings that do not comply with water conservation performance standards contained in Resolution No. 88-2 (Revision 2).

p. Nothing in this docket approval shall be construed as limiting the authority of DRBC to adopt and apply charges or other fees to this discharge or project.

q. The issuance of this docket approval shall not create any private or proprietary rights in the waters of the Basin, and the Commission reserves the right to amend, suspend or rescind the docket for cause, in order to ensure proper control, use and management of the water resources of the Basin.

r. Unless an extension is requested and approved by the Commission in advance, in accordance with paragraph 11 of the Commission's Project Review Fee schedule (Resolution No. 2009-2), the docket holder is responsible for timely submittal of a docket renewal application on the appropriate DRBC application form at least 12 months in advance of the docket expiration date set forth below. The docket holder will be subject to late charges in the event of untimely submittal of its renewal application, whether or not DRBC issues a reminder notice in advance of the deadline or the docket holder receives such notice. In the event that a timely and complete application for renewal has been submitted and the DRBC is unable, through no fault of the docket holder, to reissue the docket before the expiration date below (or the later date established by an extension that has been timely requested and approved), the terms and conditions of the current docket will remain fully effective and enforceable against the docket holder pending the grant or denial of the application for docket approval.

s. The Executive Director may modify or suspend this approval or any condition thereof, or require mitigating measures pending additional review, if in the Executive

Director's judgment such modification or suspension is required to protect the water resources of the Basin.

t. Any person who objects to a docket decision by the Commission may request a hearing in accordance with Article 6 of the Rules of Practice and Procedure. In accordance with Section 15.1(p) of the Delaware River Basin Compact, cases and controversies arising under the Compact are reviewable in the United States district courts.

u. The docket holder may request of the Executive Director in writing the substitution of specific conductance for TDS. The request should include information that supports the effluent specific correlation between TDS and specific conductance. Upon review, the Executive Director may modify the docket to allow the substitution of specific conductance for TDS monitoring.

v. The docket holder is prohibited from treating/pre-treating any hydraulic fracturing wastewater from sources in or out of the Basin at this time. Should the docket holder wish to treat/pre-treat hydraulic fracturing wastewater in the future, the docket holder will need to first apply to the Commission to renew this docket and be issued a revised docket allowing such treatment and an expanded service area. Failure to obtain this approval prior to treatment/pre-treatment will result in action by the Commission.

w. The docket holder shall continue to submit monitoring data and PMP Annual Reports to the Commission's Modeling, Monitoring and Assessment Branch as required in the existing NPDES Permit.

x. Construction of the outfall extension and diffuser must be completed no later than September 30, 2014.

y. The docket holder may continue to accept up to 0.06 mgd of leachate from the GROWS site as described in Docket No. D-1987-008 CP-2 as long as the leachate accepted does not exceed an average monthly color of 4,000 units on the platinum cobalt scale and the effluent from the MBMA WWTP meets all effluent requirements in EFFLUENT TABLES A-1 and A-2 above. Violations of the color or TDS effluent limit from EFFLUENT TABLE A-2 shall be reported to the Commission in accordance with DECISION Condition II.d. above. Depending on the frequency, extent, and cause of the color violation(s), the Executive Director may direct MBMA to reduce or curtail the acceptance of leachate from the GROWS site to the docket holder's WWTP; provided the leachate from the GROWS site is not in compliance with the requirements of this condition, or the Executive Director determines that the effluent accepted from the GROWS site is substantially contributing to the MBMA reported effluent color violation(s).

z. This docket approves an acute toxicity dilution factor of 6.4 to 1 at a RMZ of semi-circles with a radius of 29.5 feet centered on each port of Outfall No. 001.

BY THE COMMISSION

DATE APPROVED: December 5, 2012

EXPIRATION DATE: December 5, 2017